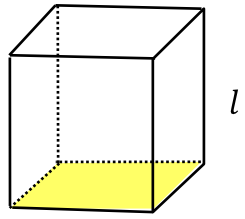
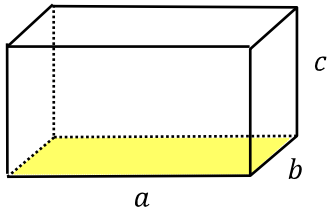
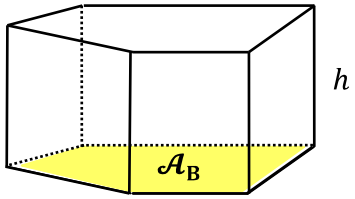
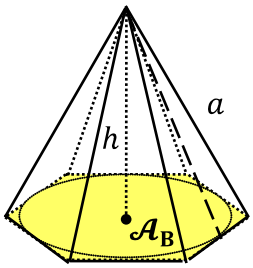
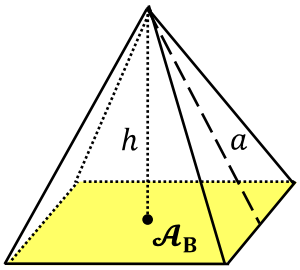
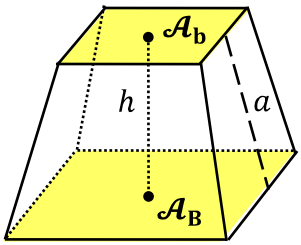
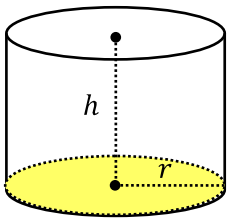
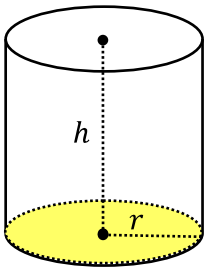
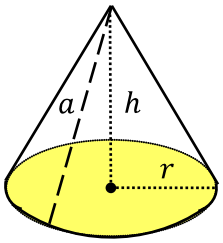
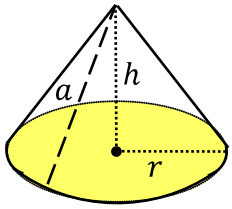
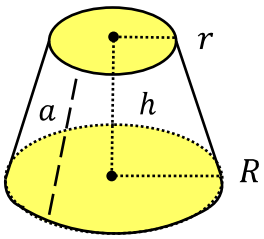
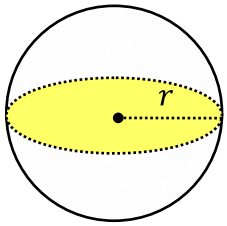
Volumi $\mathcal{V}$ e superfici $\mathcal{S}$ delle principali figure solide

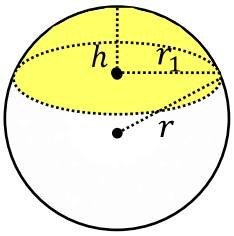
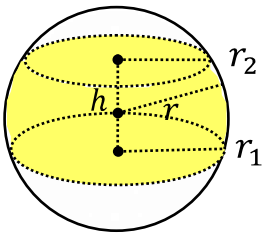
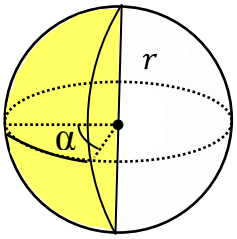
cubo		parallelepipedo rettangolo		prisma retto	
					
$\mathcal{V} = l^3$		$\mathcal{V} = a \cdot b \cdot c$		$\mathcal{V} = \mathcal{A}_B \cdot h$	
$\mathcal{S}_B = 2l^2$	$\mathcal{S}_L = 4l^2$	$\mathcal{S}_B = 2ab$	$\mathcal{S}_L = 2(a+b)c$	$\mathcal{S}_B = 2\,\mathcal{A}_B$	$\mathcal{S}_L = perimetro\ di\ base \cdot h$

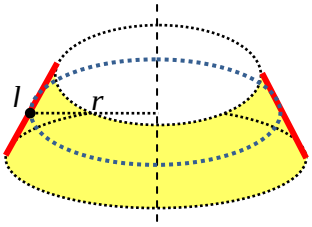
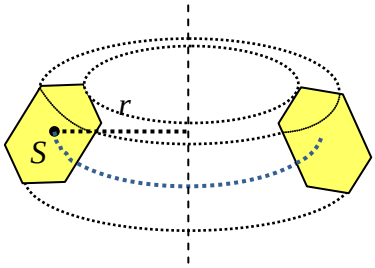
piramide retta a base regolare		piramide retta		tronco di piramide	
					
$\mathcal{V} = \frac{\mathcal{A}_B \cdot h}{3}$		$\mathcal{V} = \frac{\mathcal{A}_B \cdot h}{3}$		$\mathcal{V} = \frac{1}{3}h\left(\mathcal{A}_B + \mathcal{A}_b + \sqrt{\mathcal{A}_B\mathcal{A}_b}\right)$	
$\mathcal{S}_B = \mathcal{A}_B$	$\mathcal{S}_L = \frac{perimetro\ di\ base \cdot a}{2}$	$\mathcal{S}_B = \mathcal{A}_B$	$\mathcal{S}_L = somma\ aree\ facce\ laterali$	$\mathcal{S}_B = \mathcal{A}_B + \mathcal{A}_b$	$\mathcal{S}_L = somma\ aree\ facce\ laterali$

cilindro		cilindro equilatero ($h = 2r$)		cono	
					
$\mathcal{V} = \pi r^2 \cdot h$		$\mathcal{V} = 2\,\pi r^3$		$\mathcal{V} = \frac{\pi r^2 \cdot h}{3}$	
$\mathcal{S}_B = 2\,\pi r^2$	$\mathcal{S}_L = 2\,\pi r\,h$	$\mathcal{S}_B = 2\,\pi r^2$	$\mathcal{S}_L = 4\,\pi r^2$	$\mathcal{S}_B = \pi r^2$	$\mathcal{S}_L = \pi r\,a$

cono equilatero ($a = 2r \quad h = \sqrt{3}\,r$)		tronco di cono		sfera	
					
$\mathcal{V} = \frac{\pi r^2 \cdot h}{3}$		$\mathcal{V} = \frac{1}{3}\pi\,h(R^2 + r^2 + Rr)$		$\mathcal{V} = \frac{4}{3}\pi r^3$	
$\mathcal{S}_B = \pi r^2$	$\mathcal{S}_L = 2\,\pi r^2$	$\mathcal{S}_B = \pi R^2 + \pi r^2$	$\mathcal{S}_L = \pi(r+R)a$	$\mathcal{S} = 4\,\pi r^2$	

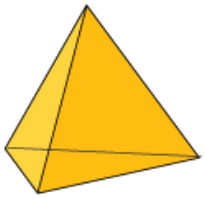
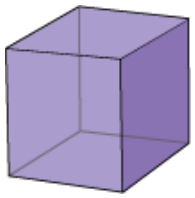
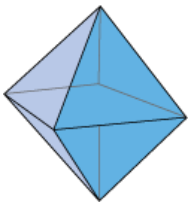
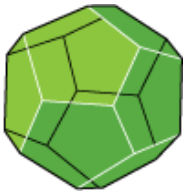
Volumi $\mathcal{V}$ e superfici $\mathcal{S}$ delle principali figure solide

segmento sferico ad 1 base	segmento sferico a 2 basi	spicchio sferico
		
$\mathcal{V} = \frac{h}{2}\pi\, {r_1}^2 + \frac{4}{3}\pi\left(\frac{h}{2}\right)^3$	$\mathcal{V} = \frac{h\pi}{2}({r_1}^2 + {r_2}^2) + \frac{4}{3}\pi\left(\frac{h}{2}\right)^3$	$\mathcal{V} = \frac{\alpha^\circ}{270^\circ}\pi\, r^3 = \frac{2}{3}\pi\, r^3 \alpha_{rad}$
$\mathcal{S} = 2\,\pi\, r\, h$	$\mathcal{S} = 2\,\pi\, r\, h$	$\mathcal{S} = \frac{\alpha^\circ}{90^\circ}\pi\, r^2 = 2\pi\, r^2 \alpha_{rad}$

1^0 teorema di Guldino	2^0 teorema di Guldino
la **superficie** generata da una linea (o da un poligono) in rotazione intorno ad un asse è uguale al prodotto della circonferenza descritta dal suo baricentro per la sua lunghezza (o perimetro)	il **volume** generato da una superficie in rotazione intorno ad un asse è uguale al prodotto della circonferenza descritta dal suo baricentro per la sua superficie
	
$\mathcal{S} = 2\,\pi\, r\, l$	$\mathcal{V} = 2\,\pi\, r\, S$

solidi platonici o poliedri regolari

I solidi platonici sono quei solidi le cui facce, tutte uguali tra loro, sono formate da poligoni regolari e tali che in ogni vertice concorrono lo stesso numero di spigoli. Sono solo cinque:

tetraedro	*esaedro (cubo)*	*ottaedro*	*dodecaedro*	*icosaedro*
4 triangoli equilateri	6 quadrati	8 triangoli equilateri	12 pentagoni regolari	20 triangoli equilateri
				
$\mathcal{V} = l^3 \cdot 0,117$	$\mathcal{V} = l^3$	$\mathcal{V} = l^3 \cdot 0,471$	$\mathcal{V} = l^3 \cdot 7,663$	$\mathcal{V} = l^3 \cdot 2,182$

Il volume dei solidi platonici si calcola moltiplicando il cubo dello spigolo per un numero caratteristico del solido:

formula di Eulero

Indicato con:

poliedro = solido dello spazio la cui frontiera è l'unione delle facce
faccia = figura piana che compone il poliedro
spigolo = segmento di incontro delle facce
vertice = punto di incontro degli spigoli

per tutti i poliedri vale la **formula di Eulero**: $\boldsymbol{Facce + Vertici - Spigoli = 2}$